



TRK-5210E

SERVICE MANUAL

No. 923

- | | |
|--------------------------------|-----------------------|
| ① PAUSE BUTTON | ⑧ BAND SELECTOR |
| ② F.F BUTTON | ⑨ TELESCOPIC ANTENNA |
| ③ REWIND BUTTON | ⑩ TONE CONTROL |
| ④ PLAY BUTTON | ⑪ VOLUME CONTROL |
| ⑤ RECORD BUTTON | ⑫ TUNING CONTROL |
| ⑥ STOP/EJECT BUTTON | ⑬ BUILT IN MICROPHONE |
| ⑦ TAPE/RADIO/SLEEP
SELECTOR | ⑭ AC SOCKET |

SPECIFICATIONS

<u>TAPE RECORDER</u>	
Tape	Compact cassette
Tape Speed	4.75cm/s
Track System	Monaural dual track
Recording System	AC bias, 27±3 kHz
Erasing System	DC erase
Frequency Range	100 – 10000 Hz
S/N Ratio	AC: – 35 dB DC: – 40 dB
Cross Talk	– 60 dB
Wow & Flutter	0.35% RMS
Motor	DC motor (Mechanical Governor Control)
F.F. Rewind	110 Sec. (C-60)
Erase Rate	– 60 dB

Circuit System	FM/MW superheterodyne
Tuning Range	FM: 88 – 108 MHz MW: 530 – 1605 kHz
Intermediate Frequency..	FM: 10.7 MHz MW: 465 kHz
Sensitivity.....	FM: 3 dB(max.), 10 dB(pra.) MW: 35 dB(max.), 47 dB pra.)

Antenna FM: Telescopic antenna
MW: Ferrite-core antenna

Semiconductors	2IC's, 6 transistors, 13 diodes, 1 varistor
Power Supply	AC : 240V, 50 Hz (for Grate Britain) AC : 220V, 50 Hz (for 220V area) DC : 6V (IEC R20X4)
Power Supply	6W
Speaker	8 ohm P.M., 12cm
Output	1.6W (T.H.D. 10%)
Input sensitivity	
and Impedance	Microphone : -55 dB, 600 ohm Record/playback : -55 dB, 50k ohm
Output Level	
and Impedance	Record/playback : 30mV, 500 ohm
Distortion Rate	5%
Dimensions	19.5cm (H) × 32.5cm (W) × 9.7cm (D)
Weight	2.8kg

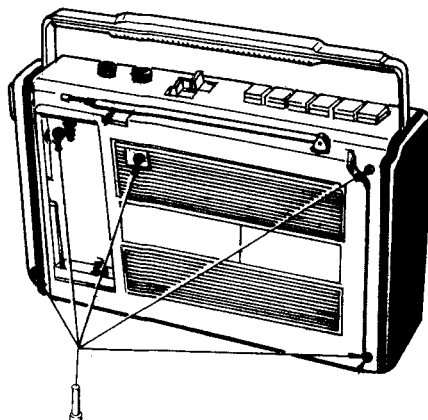
TAPE RECORDER WITH FM/MW RADIO

SAFETY PRECAUTION

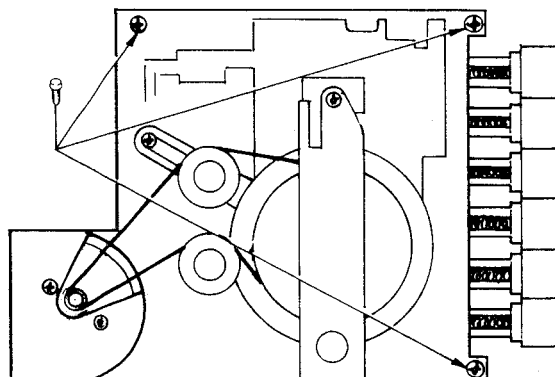
The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makes. Critical parts are marked with ★ in the schematic diagram, and circuit board diagram.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

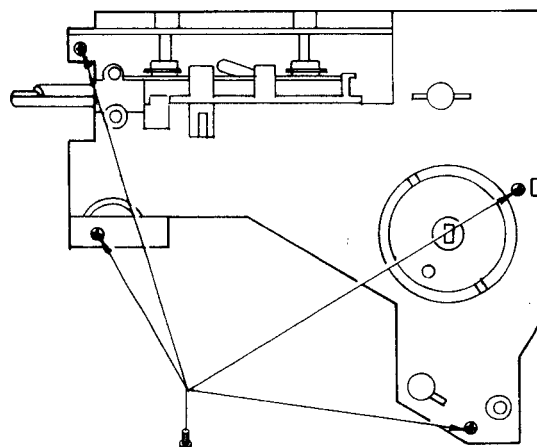
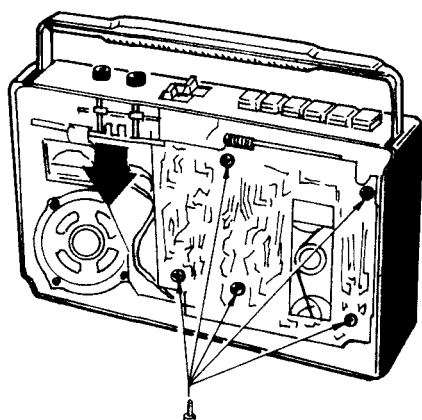
1. Removal of REAR CASE



3. Removal of CHASSIS



2. Removal of CIRCUIT BOARD

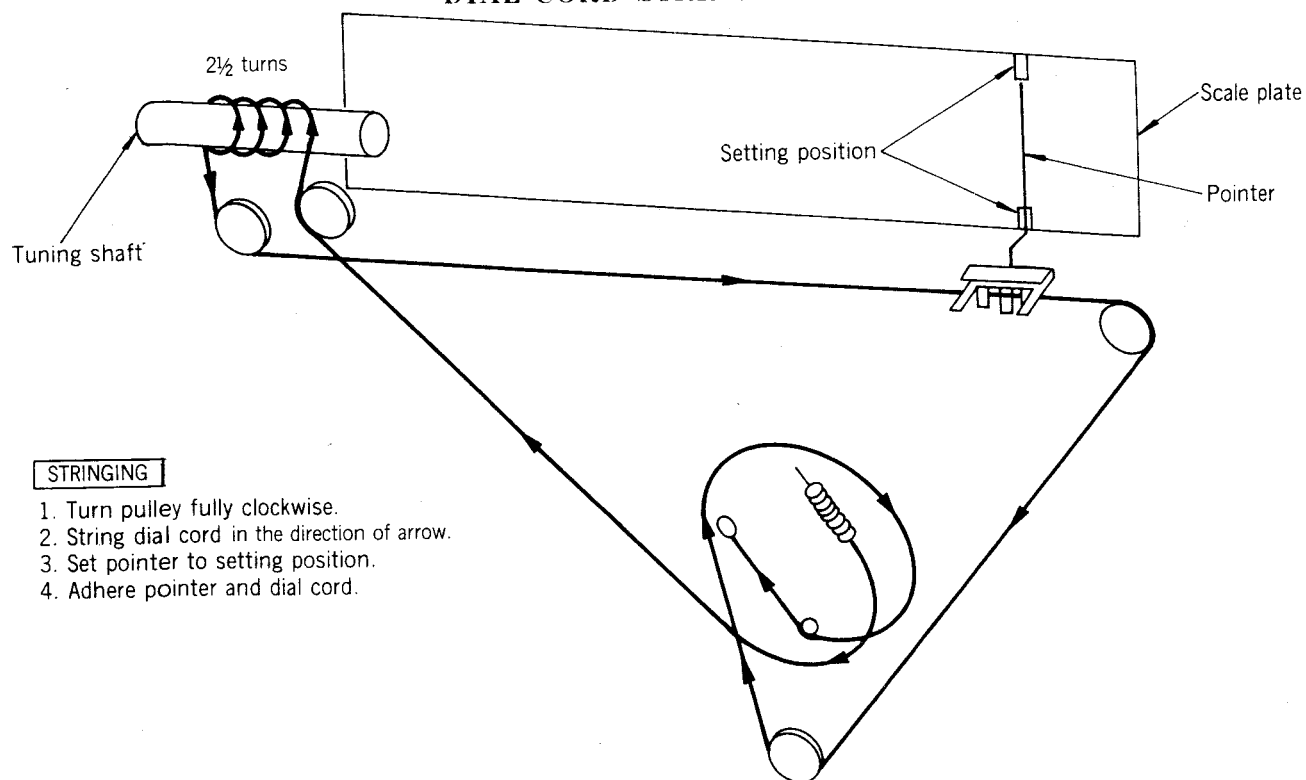


LUBRICATIONS

Lubricate one or two drops of machine oil to rotating point or lubricate grease to sliding point. Lubricate the respective parts listed below once every 1000 hours or once a year under normal conditions of use. Avoid oiling them excessively or rotation may become irregular because of oil splashes.

	Lubrication point	Oil or Grease
Cassette deck	Motor shaft bearing	Oil
	Capstan shaft bearing	Oil
	Pressure roller shaft bearing	Oil

DIAL CORD STRINGING

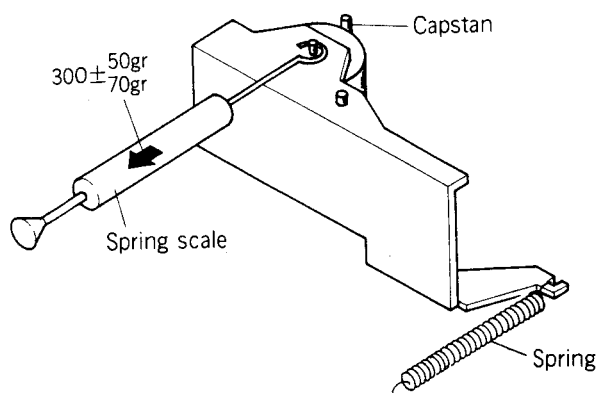


STRINGING

1. Turn pulley fully clockwise.
2. String dial cord in the direction of arrow.
3. Set pointer to setting position.
4. Adhere pointer and dial cord.

ADJUSTMENT

1. Pressure of pinch roller



- (1) Set the playback mode.
- (2) Hang a spring scale to pinch roller shaft.
- (3) Draw a spring scale to direction of arrow








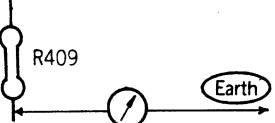
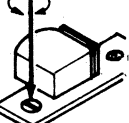
2. Tor que of Turntable

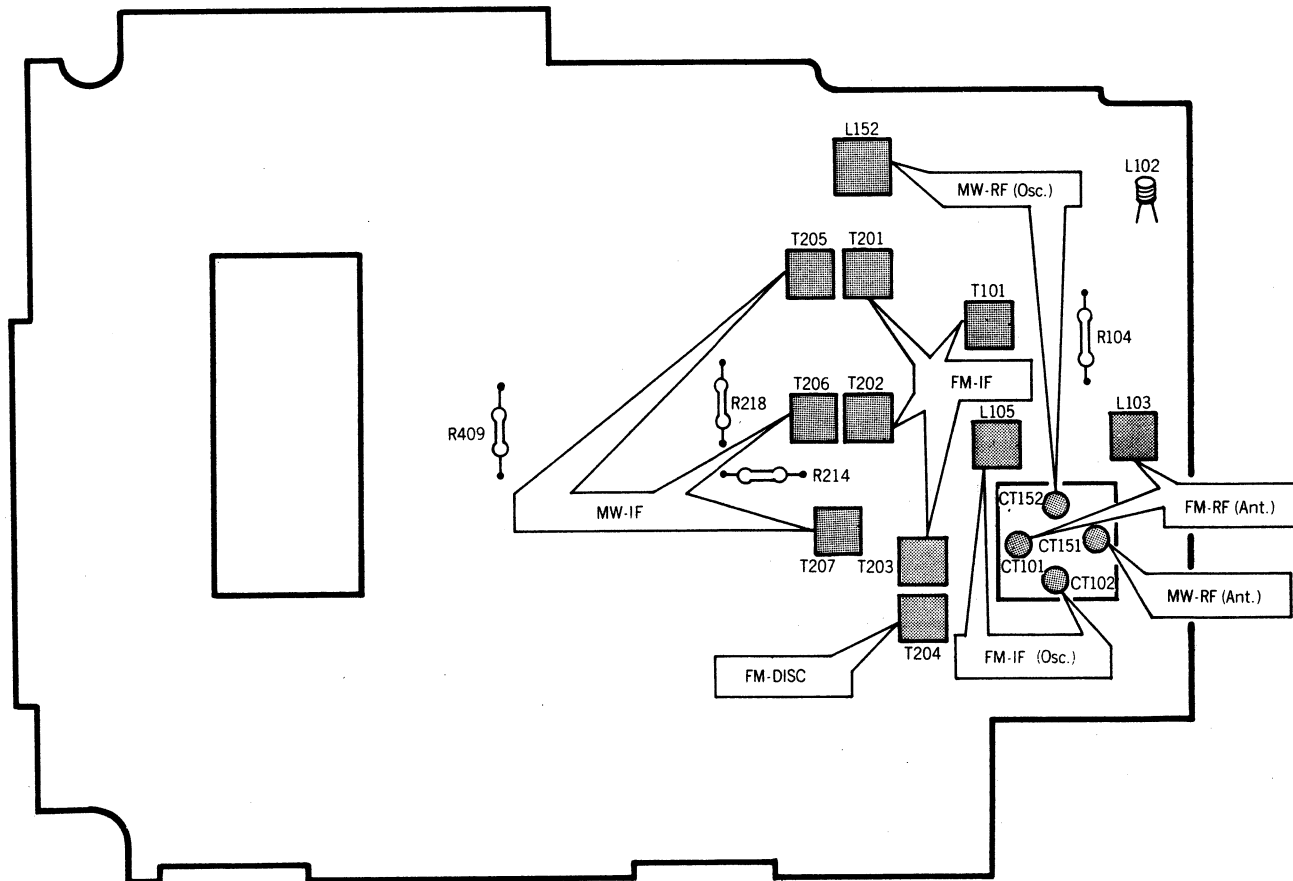
Mode	Item	Torque
In playback	Take-up torque	40 ~ 70g - cm
	Supply reel back tension	3g - cm
In rewind	Rewind torque	55 ~ 85g - cm
In fast forward	Fast forward torque	55 ~ 85g - cm

Tuner

Sequence		Connection		Setting		Adjusting			
		Input		Output		Tuner	Signal	Adjust	Indication
		Sweep Generator 	Signal Generator 	Oscilloscope 	V.T.V.M 				
Set core (T204: fully clockwise)									
1	FM-IF					f max	10.7MHz	T 101 T 201 T 202 T 203	10.7MHz
2	FM DISC							T 204	Straight line
3	FM-RF					f min	87.5MHz	L 105	V max
						f max	108MHz	CT 102	
						90MHz	90MHz	L 103	
						106MHz	106MHz	CT 101	
4	MW-IF					f max	465 KHz	T 205 T 206 T 207	465 KHz
5	MW-RF					600	600 KHz	L 152	V max
						f max	1650KHz	CT 152	
						1400KHz	1400KHz	CT 151	

Tape Recorder

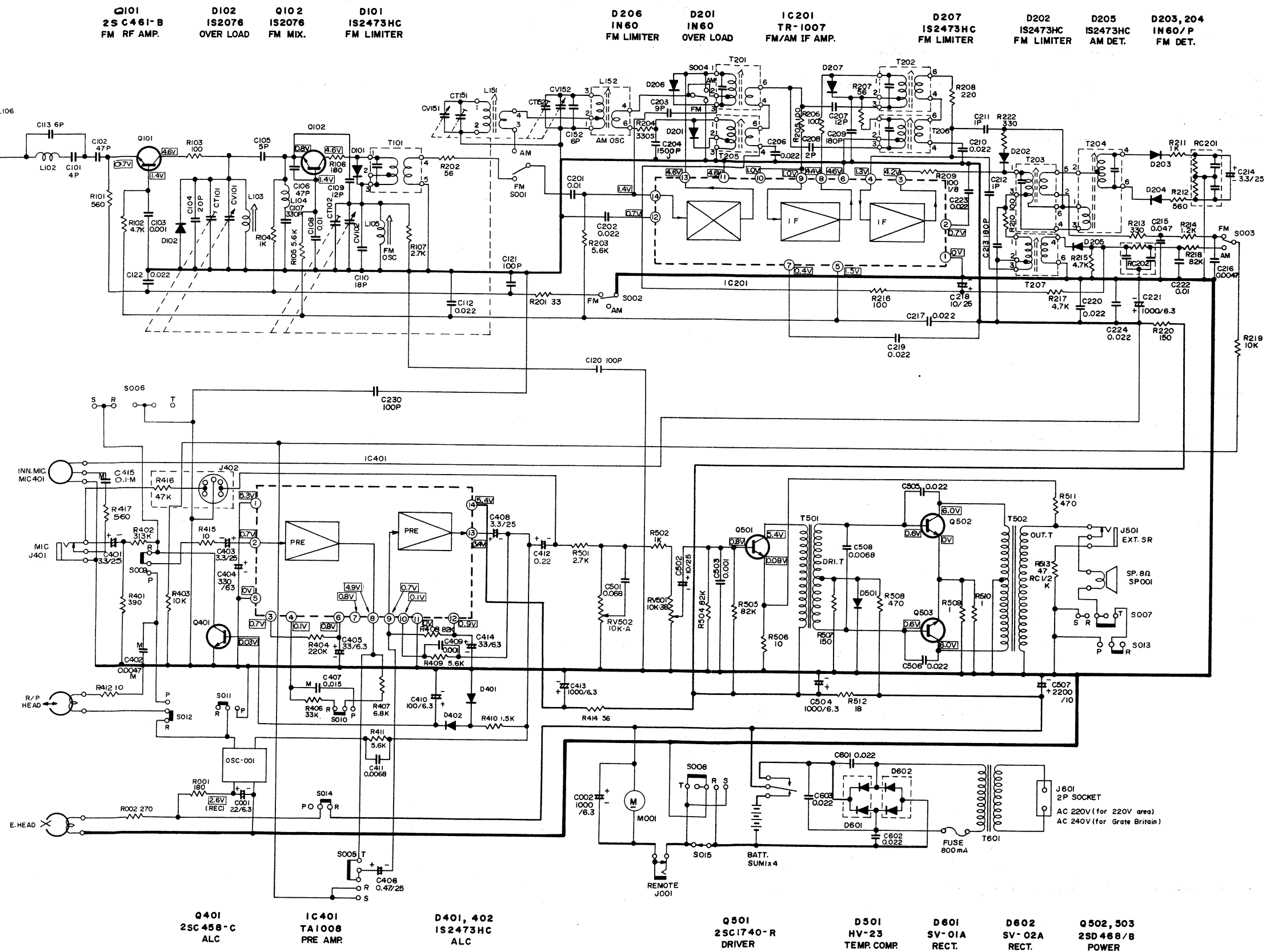
Sequence		Setting		Connection	Adjusting	
		MODE  (Rec.) (P.B.)	TEST TAPE 	V.T.V.M 	Adjust 	Indication 
	Head Azimuth 		10 kHz (MTT-116L)			V max.



REPLACEMENT PARTS


SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
CAPACITORS					
CT101	5054052	VARIABLE	T202	5140018	FM IF
CT102	5054052	VARIABLE	T203	5148033	DISCRIMINATOR-1ST
CT151	5054052	VARIABLE	T204	5148034	FM IF
CT152	5054052	VARIABLE	T205	5130034	AM IF
CV101	5054052	VARIABLE	T206	5130031	AM IF 20KOHM : 3KOHM
CV102	5054052	VARIABLE	T207	5130033	AM IF
CV151	5054052	VARIABLE	T501	5240126	DRIVER
CV152	5054052	VARIABLE	T502	5250046	OUT PUT 35G, 800MW.
C109	0246472	CERAMIC, DISC 12PF+-10%	T601	5211616	POWER 3VA*200G (HSUK)
C110	0248216	CERAMIC DISC 18PF+-10%(N-330)	T601	5211617	POWER TRANSE 3VA*200G
RESISTORS			COILS		
RC201	0186357	CR PACK	L102	5123271	FM TRAP 0.5MH
RC202	0186001	CR PACK 1KOHM 10% 0.01MF+80%-20% X 2	L103	5126006	FM RF 0.5 MICROH
RV501	5000193	VARIABLE 10KOHM(B)	L104	5150791	CHOKE
RV502	5000194	VARIABLE 10KOHM(A)	L105	5126364	FM OSCILLATOR
SEMI-CONDUCTORS			L106	5123271	FM TRAP 0.5MH
D101	5330572	DIODE SILICON 1S2473HC 100MHZ 250MW 10NS	L151	5112487	FERRITE CORE ANTENNA
D102	5330131	DIODE SILICON 1S2076 100MHZ 250MW 5NS	L152	5120244	MW OSCILLATOR
D201	5330731	DIODE GERMANIUM IN60 80MHZ 50MW	MISCELLANEOUS		
D202	5330572	DIODE SILICON 1S2473HC 100MHZ 250MW 10NS	ANT	5752211	ROD ANTENNA
D203	0575019	DIODE GERMANIUM IN60P 80MHZ 50MW 70NS	F601	5720175	FUSE 0.8A
D204	0575019	DIODE GERMANIUM IN60P 80MHZ 50MW 70NS	J401	5679302	JACK PLATE
D205	5330572	DIODE SILICON 1S2473HC 100MHZ 250MW 10NS	J402	5651141	5P DIN SOCKET
D206	5330731	DIODE GERMANIUM IN60 80MHZ 50MW	J601	5652041	2P SOCKET
D207	5330572	DIODE SILICON 1S2473HC 100MHZ 250MW 10NS	MIC	5421014	MICROPHONE
D401	5330572	DIODE SILICON 1S2473HC 100MHZ 250MW 10NS	OSC001	5280581	OSC BLOCK
D402	5330572	DIODE SILICON 1S2473HC 100MHZ 250MW 10NS	SP	5406141	SPEAKER-12CM
D501	5340121	VARISTOR	S001	5623281	SLIDE SWITCH
D601	5330371	DIODE IER SILICON SV01A 60HZ 1.7W	S002	5623281	SLIDE SWITCH
D602	5330372	DIODE SILICON SV02A 60HZ 1.7W	S003	5623281	SLIDE SWITCH
IC201	5357561	IC TR1007	S004	5623281	SLIDE SWITCH
IC401	5356211	IC TA1008	S005	5624031	SLIDE SWITCH
Q101	0573507	TRANSISTOR SILICON 2SC461B 230MHZ 200MW	S006	5624031	SLIDE SWITCH
Q102	0573510	TRANSISTOR SILICON 2SC535 700MHZ 100MW	S007	5624031	SLIDE SWITCH
Q401	0573481	TRANSISTOR SILICON 2SC458 230MHZ 200MW	S008	5624031	SLIDE SWITCH
Q501	5321291	TRANSISTOR 2SC1740R	S009	5623112	SLIDE SWITCH
Q502	5321212	TRANSISTOR SILICON 2SD468B 190MHZ 0.9W	S010	5623112	SLIDE SWITCH
Q503	5321212	TRANSISTOR SILICON 2SD468B 190MHZ 0.9W	S011	5623112	SLIDE SWITCH
TRANSFORMERS			S012	5623112	SLIDE SWITCH
T101	5140017	FM IF	S013	5623112	SLIDE SWITCH
T201	5140018	FM IF	S014	5623112	SLIDE SWITCH
			S015	5603112	LEAF SWITCH
			FOR ACCESSARYS		
			5743898	POWER CORD	
			5746341	CORD ASSEMBLY (HSUK)	








TRK-521OE TRK-521OE



Note

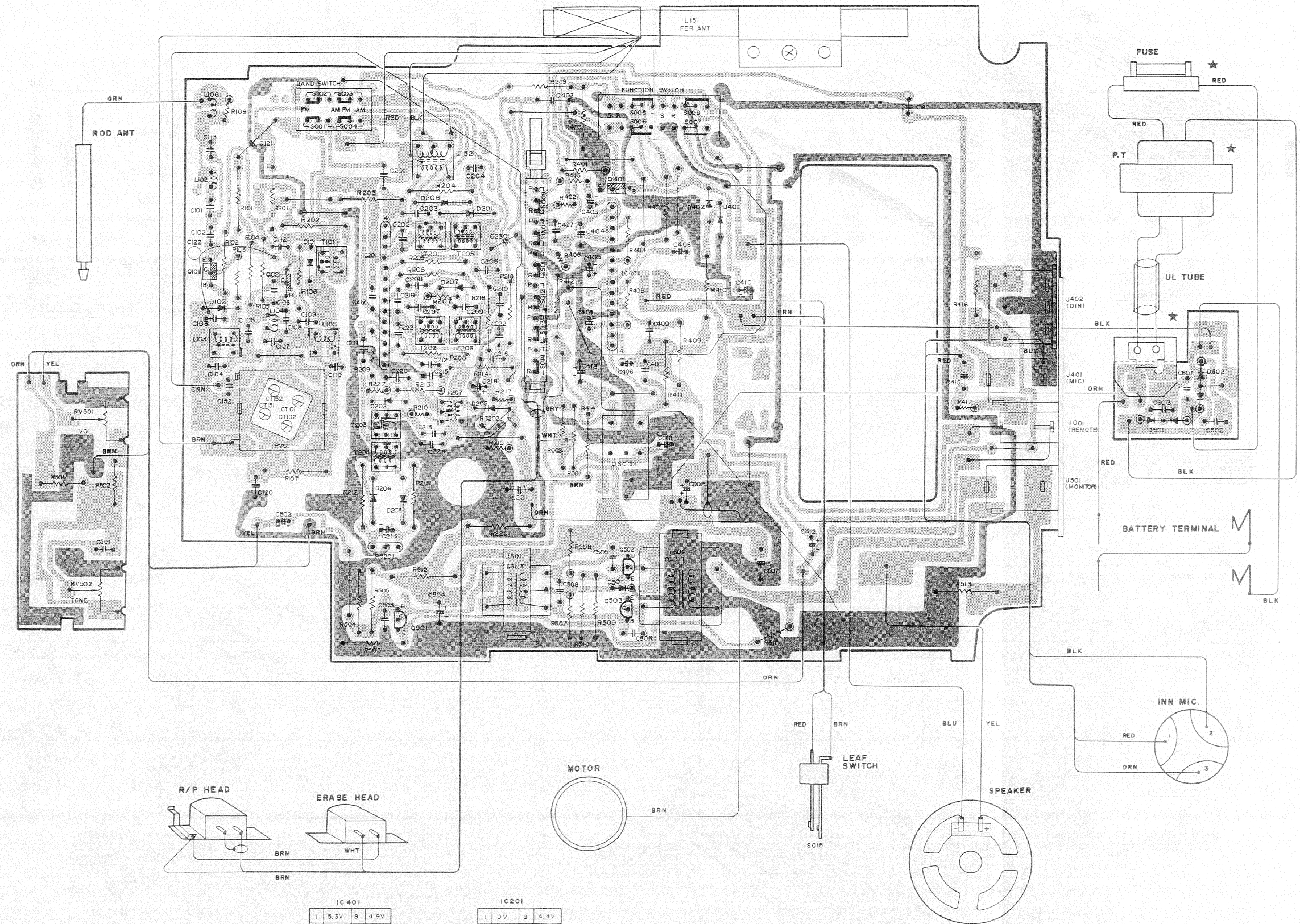
1. Voltage measured at base of chassis with minimum volume control and no signal.
2. Nomenclature of Resistors and Capacitors.

	Circuit No.	
	Value	No indicated Ω (Ohm) M : 1000 k Ω
	Tolerance	No indicated $\pm 5\%$ K : $\pm 10\%$ M : $\pm 20\%$
	Wattage	No indicated $\frac{1}{4}$ W
	Sort	No indicated Carbon film RC : Composition RW : Wire wound RS : Oxide metal film RN : Fixed metal film

		Circuit No.	
		Value	No indicated μF P : PF
	C101 0.001·M	Tolerance	No indicated $\pm 10\%$ J : $\pm 5\%$ M : $\pm 20\%$ Z : $+80\%$, -20% D : $\pm 0.5pF$ C : $\pm 0.25pF$
		Sort	 Ceramic  Electrolytic  Mylar  Polyester  Styrol
	C102 0.1/16	Voltage	No indicated 50WV

3. Be sure to make your orders of resistors and capacitors with value, voltage, tolerance and sort.
4. When replacing capacitors marked with *, use specified ones stated on parts list since required temperature characteristics.

TRK-521OE TRK-521OE



Q401	Q502, 503
B 0.03V	B 0.62V
E 0V	E 0V
C —	C 6.0V

IC 401			
1	5.3V	8	4.9V
2	0.7V	9	0.7V
3	0.7V	10	0.1V
4	0.1V	11	0V
5	0V	12	0.9V
6	0.8V	13	3.4V
7	0.8V	14	5.4V

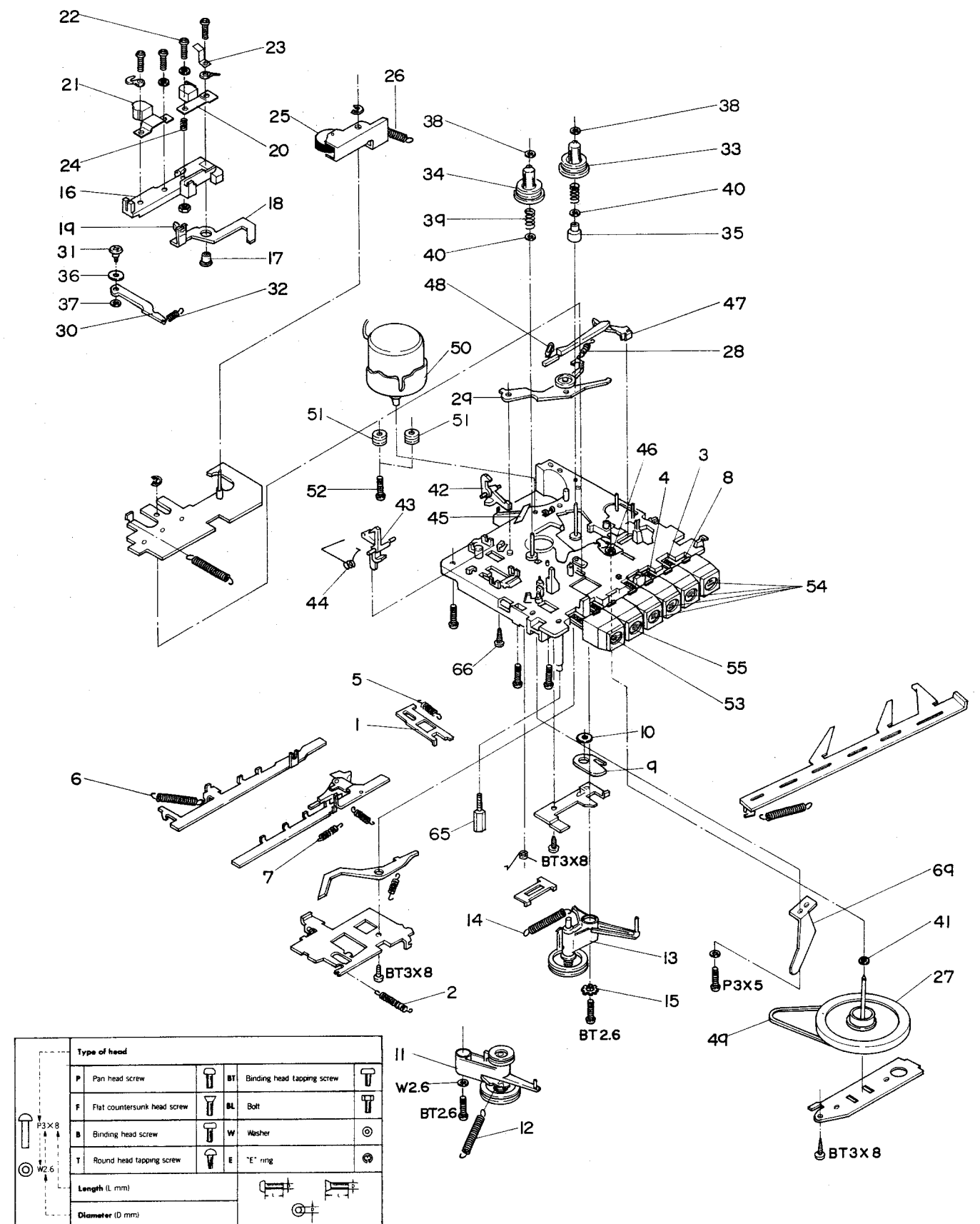
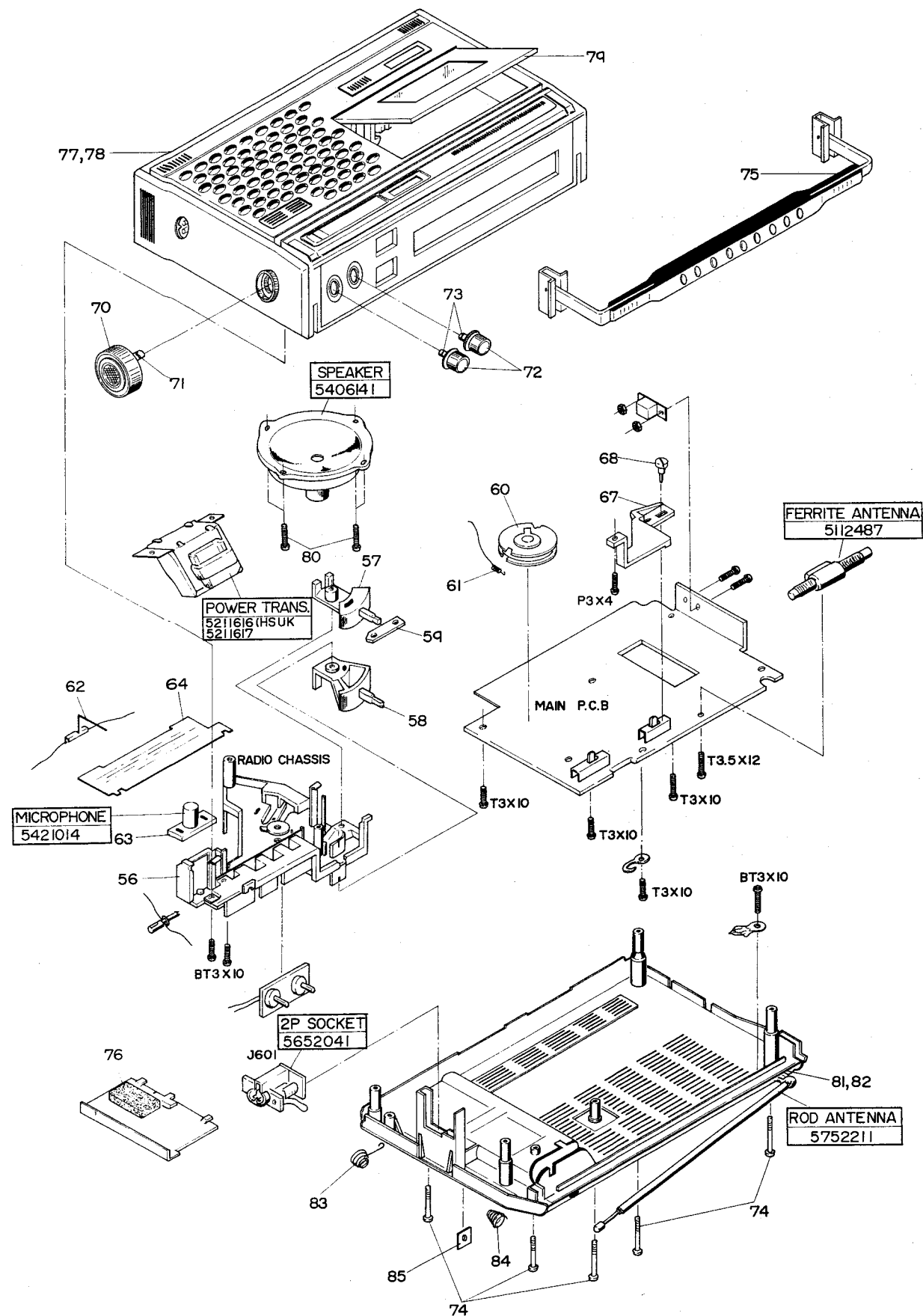
Q501
B 0.8V
E 0.08V
C 5.4V

IC 201			
1	0V	8	4.4V
2	0.7V	9	1.0V
3	4.2V	10	1.0V
4	1.3V	11	4.6V
5	1.5V	12	0.7V
6	4.6V	13	4.6V
7	0.4V	14	1.4V

Q102
B 1.4V
E 0.8V
C 4.6V

Q101
B 1.4V
E 0.7V
C 4.6V

TRK-5210E TRK-5210E

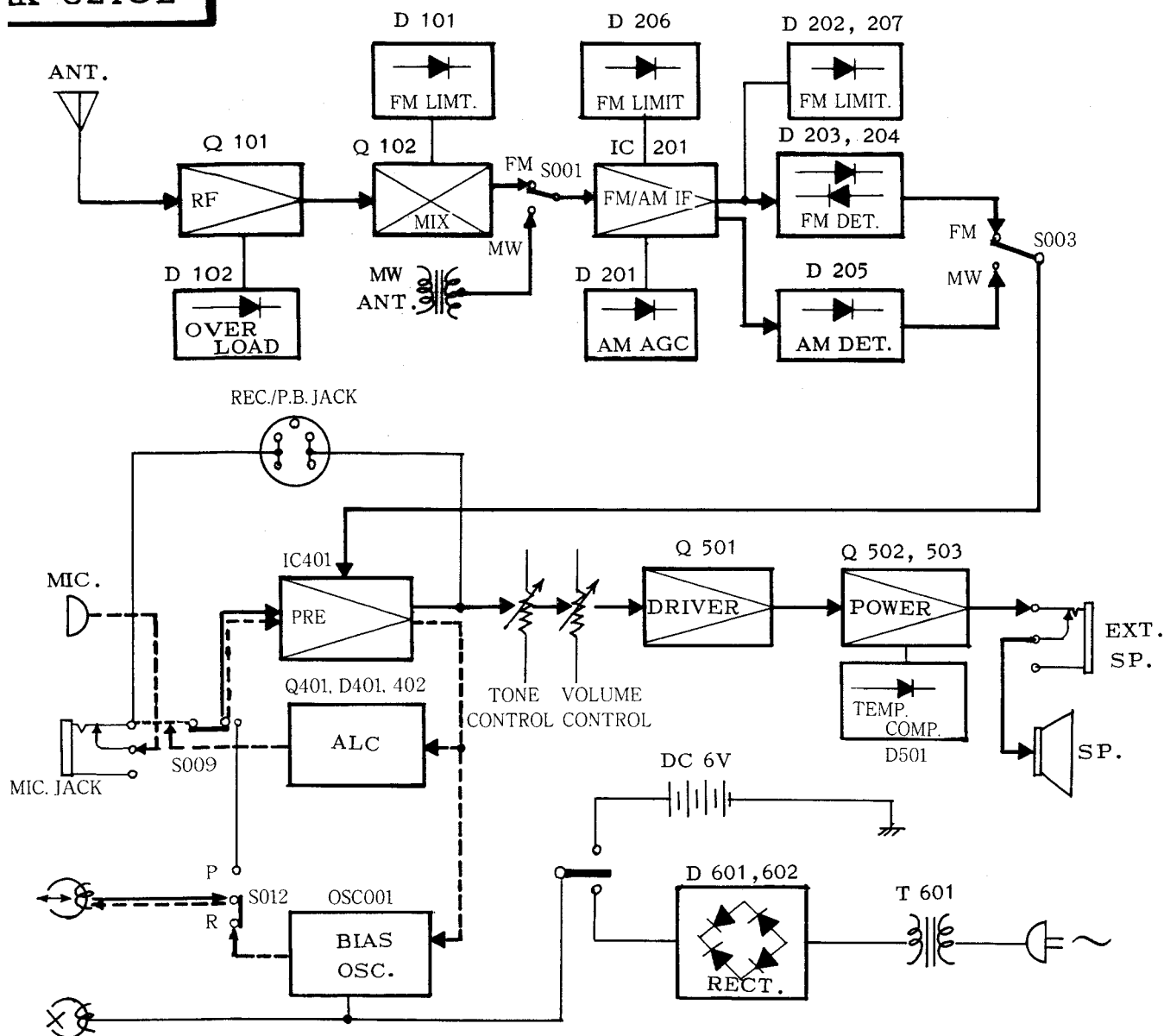


Type of head		
P	Pan head screw	BT
F	Flat countersunk head screw	BL
B	Binding head screw	W
T	Round head tapping screw	E
Length (L mm)		
Diameter (D mm)		

When ordering hardware excluding stated on these lists, be sure to make your orders with type and size.

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
FOR ACCESSARYS			44	6307291	SPRING
	6728972	ERASE PLUG	45	6327781	CASSETTE HOLDER
	5731001	EARPHONE	46	7771912	NYLON WASHER
FOR CASSETTE DECK ASSEMBLY (A)			47	7270783	BRAKE PIECE
1	7267183	EJECT SLIDER	48	6586002	BRAKE RUBBER
2	6319802	PLAYBACK PLATE SPRING	49	6354211	BELT
3	6303613	SPRING	50	5572204	MICRO MOTOR
4	6303615	SLIDER SPRING	51	6576082	RUBBER PLATE
5	6318921	FAST FORWARD SPRING	52	7539003	SCREW
6	6300143	SPRING	53	6255392	BUTTON ASSEMBLY
7	6325261	SPRING	54	6258926	BUTTON ASSEMBLY
8	7267448	PAUSE SLIDER ASSEMBLY	55	6255534	BUTTON ASSEMBLY
9	6725701	PAUSE LOCK PIECE	FOR CASSETTE DECK ASSEMBLY (B)		
10	0626833	FELT	56	6736844	CHASSIS ASSEMBLY
11	6412163	REWIND ARM ASSEMBLY	57	6298293	SELECT LEVER (3P)
12	6319481	SPRING	58	6298294	SELECT LEVER (2P)
13	6411494	TAKE UP ARM ASSEMBLY	59	7278282	SELECT ARM P
14	6300171	SPRING	60	6345533	PULLEY
15	7189543	SPRING HOLDER	61	6316231	SPRING M
16	6732923	HEAD BASE	62	6395241	POINTER
17	7535223	HEAD COLLAR	63	6570071	HOLDER
18	7267147	ARM	64	6470482	SCALE PLATE
19	6733052	PICK UP PIECE	65	7568131	STUD BT
20	5443091	RECORD PLAYBACK HEAD	66	7780185	PAN HEAD B TIGHTENING SCREW-2.6MMX 6MM
21	5445071	ERASE HEAD	67	6736811	SELECT ARM M
22	7781001	SCREW	68	7777593	SPECIAL SCREW
23	7277481	CASSETTE GUIDE	69	6327121	SPRING
24	6321734	SPRING	MISCELLANEOUS		
25	7267483	PRESSURE ARM ASS'Y	70	6281701	TUNING KNOB
26	6300843	SPRING	71	6310162	SPRING WASHER
27	6372222	FLYWHEEL ASS'Y	72	6281592	KNOB
28	6322501	PRESSURE RETURN SPRING	73	6310166	SPRING
29	7267226	FAST FORWARD LEVER ASSEMBLY	74	7781143	BT SCREW-3MMDX30MM
30	7267153	LOCK LEVER	75	6333327	HANDLE ASSEMBLY
31	7536872	LOCK LEVER PIN	76	6171934	BATTERY LID ASSEMBLY
32	6300592	LOCK SPRING	77	6136151	FRONT CASE ASSEMBLY
33	6411754	TURNTABLE ASS'Y	78	6136152	FRONT CASE ASSEMBLY (HSUK)
34	6411753	TURNTABLE ASS'Y	79	6090704	CASSETTE LID
35	6732883	COLUMN	80	7781133	BT SCREW-3MMD
36	7778852	POLYESTER WASHER	81	6137952	REAR CASE ASSEMBLY
37	0948881	POLYESTER WASHER	82	6137953	REAR CASE ASSEMBLY (HSUK)
38	7786115	POLYESTER WASHER	83	6303972	SPRING
39	6320733	SPRING	84	6324112	SPRING
40	7786023	POLYESTER WASHER	85	7450342	TERMINAL
41	7778856	POLYESTER WASHER			
42	6732872	RECORDING PREVENTION LEVER			
43	6732942	EJECT ARM			

IK-5210E



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